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Relevance scale ☐ ☐ ☐ ☐ ☐**1** [Posters: Generic sign board detection in images](#)

Hua Shen, Xiaou Tang

November 2003 **Proceedings of the 5th ACM SIGMM international workshop on Multimedia information retrieval**Full text available: [pdf\(507.73 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Sign board detection is important for such computer vision applications as video surveillance and content based visual information retrieval. Previous researches on this topic focus mainly on application specific sign board such as car plates and traffic signs. Many special properties including special color, size, shape, and symmetry have to be used to detect these special sign boards. In this paper, we develop a system to detect generic sign board in an image or video. The only assumption we m ...

Keywords: hough transform, image analysis, line verification, sign board detection**2** [Mathematical Models for Automatic Line Detection](#)

Arnold K. Griffith

January 1973 **Journal of the ACM (JACM)**, Volume 20 Issue 1Full text available: [pdf\(1.24 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

A particular decision-theoretic approach to the problem of detecting straight edges and lines in pictures is discussed. A model is proposed of the appearance of scenes consisting of prismatic solids, taking into account blurring, noise, and smooth variations in intensity over faces. A suboptimal statistical decision procedure is developed for the identification of a line within a narrow band in the field of view, given an array of intensity values from within the band. The performance of th ...

3 [A survey of methods for recovering quadrics in triangle meshes](#)

Sylvain Petitjean

June 2002 **ACM Computing Surveys (CSUR)**, Volume 34 Issue 2Full text available: [pdf\(3.91 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In a variety of practical situations such as reverse engineering of boundary representation from depth maps of scanned objects, range data analysis, model-based recognition and algebraic surface design, there is a need to recover the shape of visible surfaces of a dense


3D point set. In particular, it is desirable to identify and fit simple surfaces of known type wherever these are in reasonable agreement with the data. We are interested in the class of quadric surfaces, that is, algebraic surfa ...

Keywords: Data fitting, geometry enhancement, local geometry estimation, mesh fairing, shape recovery

4 Posters: Model checking for detection of sport highlights

M. Bertini, A. Del Bimbo, W. Nunziati

November 2003 **Proceedings of the 5th ACM SIGMM international workshop on Multimedia information retrieval**

Full text available:  pdf(530.88 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


Automatic semantic annotation of sports video requires that the domain knowledge is properly included and exploited in the annotation process and that low and intermediate-level features are conveniently selected, extracted from the video and combined so that their spatio-temporal combinations identify the prominent highlights. Spatial and temporal extensions of the highlights must be precisely detected in order to permit the extraction of the most salient parts of the video and construct automa ...

Keywords: automatic video annotation, model checking, sports video

5 Computational strategies for object recognition

Paul Suetens, Pascal Fua, Andrew J. Hanson

March 1992 **ACM Computing Surveys (CSUR)**, Volume 24 Issue 1

Full text available:  pdf(6.37 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

This article reviews the available methods for automated identification of objects in digital images. The techniques are classified into groups according to the nature of the computational strategy used. Four classes are proposed: (1) the simplest strategies, which work on data appropriate for feature vector classification, (2) methods that match models to symbolic data structures for situations involving reliable data and complex models, (3) approaches that fit models to the photometry and ...

Keywords: image understanding, model-based vision, object recognition

6 Progress in Picture Processing: 1969--71

Azriel Rosenfeld

June 1973 **ACM Computing Surveys (CSUR)**, Volume 5 Issue 2

Full text available:  pdf(2.34 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

7 IRS: a hierarchical knowledge based system for aerial image interpretation

Steve Cosby, Ray Thomas

June 1990 **Proceedings of the third international conference on Industrial and engineering applications of artificial intelligence and expert systems - Volume 1**

Full text available:  pdf(1.49 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

A knowledge based architecture for the interpretation of aerial images is presented. The Image Recognition System (IRS) utilises a multiresolution perceptual clustering methodology as a robust alternative to the more traditional edge or region based

approaches. Initially, data driven feature generation and primary perceptual clustering is performed independently for two or more reduced resolution versions of the image. A Rule Based Frame System (RBFS) is then used to instantiate more comple ...

8 Boundary and Object Detection in Real World Images

Yoram Yakimovsky

October 1976 **Journal of the ACM (JACM)**, Volume 23 Issue 4

Full text available:  [pdf\(1.75 MB\)](#)


Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

A computer solution to the problem of automatic location of objects in digital pictures is presented. A self-scaling local edge detector that can be applied in parallel on a picture is described. Clustering algorithms and sequential boundary following algorithms process the edge data to local images of objects and generate a data structure that represents the imaged objects.

9 Three-dimensional object recognition

Paul J. Besl, Ramesh C. Jain

March 1985 **ACM Computing Surveys (CSUR)**, Volume 17 Issue 1

Full text available:  [pdf\(7.76 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

A general-purpose computer vision system must be capable of recognizing three-dimensional (3-D) objects. This paper proposes a precise definition of the 3-D object recognition problem, discusses basic concepts associated with this problem, and reviews the relevant literature. Because range images (or depth maps) are often used as sensor input instead of intensity images, techniques for obtaining, processing, and characterizing range data are also surveyed.

10 Controlling asymmetric errors in neuro-fuzzy classification

Aljoscha Klose, Rudolf Kruse, Karsten Schulz, Ulrich Thönnessen

March 2000 **Proceedings of the 2000 ACM symposium on Applied computing**

Full text available:  [pdf\(550.50 KB\)](#)


Additional Information: [full citation](#), [references](#), [index terms](#)

Keywords: aerial images, asymmetric errors, neuro-fuzzy classifiers, unbalanced data

11 Computational Approaches to Image Understanding

Michael Brady

January 1982 **ACM Computing Surveys (CSUR)**, Volume 14 Issue 1


Full text available:  [pdf\(10.04 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

12 Computer Processing of Line-Drawing Images

Herbert Freeman

January 1974 **ACM Computing Surveys (CSUR)**, Volume 6 Issue 1

Full text available:  [pdf\(3.18 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

13 An algorithmic approach to controlling search in three-dimensional image data

Michael L. Rhodes

August 1979 **ACM SIGGRAPH Computer Graphics , Proceedings of the 6th annual conference on Computer graphics and interactive techniques**, Volume 13 Issue 2

Full text available:  [pdf\(1.44 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In many three-dimensional imaging applications random shaped objects, reconstructed from serial sections, are isolated to display their overall structure in a single view. This paper presents an algorithm to control an ordered search strategy for locating all contours of random shaped objects intersected by a series of cross-section image planes. Classic search techniques in AI problem solving and software for image processing and computer graphics are combined here to aid program initializ ...

14 Document and images analysis: INFTY: an integrated OCR system for mathematical documents

Masakazu Suzuki, Fumikazu Tamari, Ryoji Fukuda, Seiichi Uchida, Toshihiro Kanahori
November 2003 **Proceedings of the 2003 ACM symposium on Document engineering**

Full text available:  [pdf\(322.41 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


An integrated OCR system for mathematical documents, called INFTY, is presented. INFTY consists of four procedures, i.e., layout analysis, character recognition, structure analysis of mathematical expressions, and manual error correction. In those procedures, several novel techniques are utilized for better recognition performance. Experimental results on about 500 pages of mathematical documents showed high character recognition rates on both mathematical expressions and ordinary texts, and suf ...

Keywords: character and symbol recognition, mathematical OCR, structure analysis of mathematical expressions

15 Image snapping

Michael Gleicher
September 1995 **Proceedings of the 22nd annual conference on Computer graphics and interactive techniques**

Full text available:  [pdf\(309.63 KB\)](#)

 [ps\(2.81 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

16 Stylization and abstraction of photographs

Doug DeCarlo, Anthony Santella
July 2002 **ACM Transactions on Graphics (TOG) , Proceedings of the 29th annual conference on Computer graphics and interactive techniques**, Volume 21 Issue 3

Full text available:  [pdf\(2.47 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


Good information design depends on clarifying the meaningful structure in an image. We describe a computational approach to stylizing and abstracting photographs that explicitly responds to this design goal. Our system transforms images into a line-drawing style using bold edges and large regions of constant color. To do this, it represents images as a hierarchical structure of parts and boundaries computed using state-of-the-art computer vision. Our system identifies the meaningful elements of ...

Keywords: eye-tracking, image simplification, non-photorealistic rendering, visual perception

17 An alignment method for noisy parallel corpora based on image processing techniques

Jason S. Chang, Mathis H. Chen
July 1997

Full text available:  [pdf\(732.10 KB\)](#)

 [Publisher Site](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

This paper presents a new approach to bitext correspondence problem (BCP) of noisy bilingual corpora based on image processing (IP) techniques. By using one of several ways of estimating the lexical translation probability (LTP) between pairs of source and target words, we can turn a bitext into a discrete gray-level image. We contend that the BCP, when seen in the light, bears a striking resemblance to the line detection problem in IP. Therefore, BCPs, including sentence and word alignment, can ...

18 Demonstration session 2: Robust goal-mouth detection for virtual content insertion

Kongwah WAN, Xin YAN, Xinguo YU, Changsheng XU

November 2003 **Proceedings of the eleventh ACM international conference on Multimedia**

Full text available:  [pdf\(575.57 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In this paper, we describe a working system that detects and segments goal-mouth appearances of soccer video in real-time. Processing on sub-optimal quality images after MPEG-decoding, the system constrains the Hough Transform-based line-mark detection to only the dominant green regions. The vertical goal-posts and horizontal goal-bar are then isolated by color-based region (pole)-growing. We demonstrate its application for quick video browsing and virtual content insertion.

19 Contributions: Current literature in computer graphics and interactive techniques: references

G. F. Schrack

February 1980 **ACM SIGGRAPH Computer Graphics**, Volume 13 Issue 4

Full text available:  [pdf\(764.00 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

The purpose of the References and Reviews Department is to collect and to disseminate rapidly as many publication citations of interest as come to the attention of the editor. Areas of interest cover all aspects of Computer Graphics and Interactive Techniques, particularly the following: man-machine interaction, graphical representation of data, data structures, data base searching and retrieval, computer aided design, graphic control systems, network design, computer art, computer animation, gr ...

20 On the evolution of videotext description scheme and its validation experiments for MPEG-7

Chitra Dorai, Ruud Bolle, Nevenka Dimitrova, Lalitha Agnihotri, Gang Wei

November 2000 **Proceedings of the 2000 ACM workshops on Multimedia**

Full text available:  [pdf\(625.31 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Videotext refers to text superimposed on still images and video frames, and can be used in many MPEG-7 applications that deal with archival and delivery of images and video. It can be used to annotate and index large video and image collections, and enables text based search, automatic video logging, and video cataloging. This paper describes the joint work of IBM and Philips Research Laboratories on designing an MPEG-7 description scheme based on videotext. It describes the elements comprisi ...

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Aghajan, H.K.; Kailath, T.;

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Pages:89 - 92 vol.5

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